

## **AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A method for scheduling a packet, comprising the steps of:

receiving a packet;

identifying a flow for said packet by at least a flow identifier and available bandwidth information;

classifying said packet based on said identified flow; [[and]]

buffering said packet in one of a plurality of queues, arranged in a ~~hierarchical~~ priority order, based on said classification of said packet and a priority of said packet assigned based on said ~~hierarchical~~ priority order[.]]; and

processing said packet in the one of the plurality of queues based on an accumulated bandwidth, size, and a residue bandwidth of said packet.

2. (Original) The method of claim 1, wherein identifying said flow for said packet comprises identifying a source address of said packet.

3. (Original) The method of claim 1, wherein identifying said flow for said packet comprises identifying a destination address of said packet.

4. (Original) The method of claim 1, wherein classifying said packet comprises:

calculating a size of said packet; and  
calculating an allocated credit assigned to said flow based upon said size of said packet.

5. (Original) The method of claim 4, wherein calculating said allocated credit is based upon a bandwidth assigned to said flow.

6. (Currently Amended) The method of claim 1, wherein buffering said packet in one of said plurality of queues comprises:

arranging said plurality of queues in a ~~hierarchical~~ priority order;  
assigning a priority to said packet based on said ~~hierarchical~~ priority order; and  
buffering said packet in one of said queues based on said assigned priority.

7. (Currently Amended) The method of claim 6, wherein assigning a priority to said packet based on said ~~hierarchical~~ priority order comprises;

determining a size of said packet; and  
calculating a transmission delay based on said size of said packet and said ~~hierarchical~~ priority order.

8. (Currently Amended) The method of claim 1, wherein processing further comprising comprises:

identifying at least one of said plurality of queues having buffered packets;  
determining a first queue of said plurality of queues having buffered packets;

calculating a credit accumulated for one of said buffered packets in ~~the first~~ said  
determined queue;

calculating a residual credit for said one buffered packet; and

outputting said one buffered packet based upon said accumulated credit and said  
residual credit.

9. (Currently Amended) The method of claim 8, further comprising:

determining a ~~hierarchical~~ priority order for said queues having buffered packets;  
and

determining a next queue having buffered packets based on said ~~hierarchical~~  
priority order.

10. (Currently Amended) A system for scheduling a packet, comprising;

an input to receive a plurality of packet;

an arrival module to identify a flow for each of said plurality of packets by at least  
a flow identifier and available bandwidth information;

a classifier to assign each of said plurality of packets to one of a plurality of  
queues, arranged in a ~~hierarchical~~ priority order, based on said identified flow[.];

a server for selecting one of said plurality of queues based on said ~~hierarchical~~  
priority order; and

an output for outputting a packet from said selected queue based on said  
identified flow and a priority of said packet assigned based on said ~~hierarchical~~ priority

order based on an accumulated bandwidth, size, and a residue bandwidth of said packet.

11. (Original) The system of claim 10, further comprising:  
a memory to store a service list of flows identified for each of said plurality of packets.

12. (Currently Amended) An apparatus for scheduling a packet, comprising:  
means for receiving a packet;  
means for identifying a flow for said packet by at least a flow identifier and available bandwidth information;  
means for classifying said packet based on said identified flow; [[and]]  
means for buffering said packet in one of a plurality of queues, arranged in a ~~hierarchical~~ priority order, based on said classification of said packet and a priority of said packet assigned based on said ~~hierarchical~~ priority order [[.]]; and  
means for processing said packet in the one of the plurality of queues based on an accumulated bandwidth, size, and a residue bandwidth of said packet.

13. (Currently Amended) A computer-readable medium for configuring a processor to execute a method for scheduling a packet, said method comprising the steps of:  
receiving a packet;

identifying a flow for said packet by at least a flow identifier and available bandwidth information;

classifying said packet based on said identified flow; [[and]]

buffering said packet in one of a plurality of queues, arranged in a ~~hierarchical~~ priority order, based on said classification of said packet and a priority of said packet assigned based on said ~~hierarchical~~ priority order[.]; and

processing said packet in the one of the plurality of queues based on an accumulated bandwidth, size, and a residue bandwidth of said packet.